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| 10/525,276 | 10/17/2005 | Hisao Kojima | 09792909-0163 | 4962 |

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| EXAMINER |
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BUSHEY, CHARLES S

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| ART UNIT | PAPER NUMBER |
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1724

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/525,276

Applicant(s)

KOJIMA, HISAO

Examiner

Scott Bushey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6-12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10-18-05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

It is noted that the foreign references listed within the specification have been neither cited on an IDS, nor have copies thereof been supplied to the USPTO for review by the Examiner.

Drawings

2. Figures 16 and 17 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because within the 24 pages of drawings filed on February 22, 2005, pages 18-24 are repeats of the drawings shown on pages 1-7 of the

drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next

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Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheet(s) must be clearly labeled as "Annotated Sheet" and must be presented in the amendment or remarks section that explains the change(s) to the drawings.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

Specification

4. The abstract of the disclosure is objected to because the abstract should be limited to a single paragraph of between 50 and 150 words. Correction is required. See MPEP § 608.01(b).
5. The disclosure is objected to because of the following informalities: 1) applicant should move the brief description of the drawings from pages 28-30 of the specification to page 8, between lines 4 and 5 of the current text; 2) the description of the reference numerals on pages 30-31 of the specification should be deleted as they should each appear within the body of the descriptive text of the specification.

Appropriate correction is required.

Response to Amendment

6. The amendment to the specification filed on February 22, 2005 has not been entered because it fails to comply with 37 C.F.R. 1.121(b), which states the following

- (b) Specification . Amendments to the specification, other than the claims, computer listings (§ 1.96) and sequence listings (§ 1.825), must be made by adding, deleting or replacing a paragraph, by replacing a section, or by a substitute specification, in the manner specified in this section.
- (1) Amendment to delete, replace, or add a paragraph . Amendments to the specification, including amendment to a section heading or the title of the invention which are considered for amendment purposes to be an amendment of a paragraph, must be made by submitting:
- (i) An instruction, which unambiguously identifies the location, to delete one or more paragraphs of the specification, replace a paragraph with one or more replacement paragraphs, or add one or more paragraphs;
- (ii) The full text of any replacement paragraph with markings to show all the changes relative to the previous version of the paragraph. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double

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brackets if strikethrough cannot be easily perceived;

(iii) The full text of any added paragraphs without any underlining; and

(iv) The text of a paragraph to be deleted must not be presented with strike-through or placed within double brackets. The instruction to delete may identify a paragraph by its paragraph number or include a few words from the beginning, and end, of the paragraph, if needed for paragraph identification purposes.

(2) Amendment by replacement section . If the sections of the specification contain section headings as provided in § 1.77(b), § 1.154(b), or § 1.163(c), amendments to the specification, other than the claims, may be made by submitting:

(i) A reference to the section heading along with an instruction, which unambiguously identifies the location, to delete that section of the specification and to replace such deleted section with a replacement section; and;

(ii) A replacement section with markings to show all changes relative to the previous version of the section. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double

brackets if strike-through cannot be easily perceived.

Claim Objections

7. Claims 6-12 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 6-12 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 3-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, line 2, it is unclear as to which static mixer applicant is referring with respect to claim 2, which recites two distinct static mixers.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by any one of Bearden (Figs. 2 and 8), GB 2 063 694 A (Fig. 1), JP 59-206096 (Fig. 1), and JP 2001-62269 (Figs. 1 and 2).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plunkett taken together with Dezael et al.

Plunkett (Fig. 3) substantially discloses applicant's invention as recited by instant claim 2, except for the first mixing vane means (104) and the second mixing vane means (24,26) being in the form of static mixing vanes.

Dezael et al (Figs. 4 and 6) disclose multiple embodiments of gas-liquid contacting passage tubes (1a) including a first static mixer (10c) within the main gas-liquid contact tube, and a gas spraying tube (7c), which may include a second static mixer (37) therein. In view of the fact that Dezael et al disclose positioning static mixer means in both the main contact tube and the gas supply nozzle, it would have been obvious for an artisan at the time of the invention, to modify the moving mixer vanes of Plunkett, to be of the static mixer type, as suggested by Dezael et al, since such would provide a device that would be cheaper to manufacture and maintain in light of the fact that it would have no moving parts.

14. Claims 3-5(1) are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Bearden, GB 2 063 694 A, JP 59-206096, and JP 2001-62269, taken in view of Kojima '528.

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Bearden (Figs. 2 and 8), GB 2 063 694 A (Fig. 1), JP 59-206096 (Fig. 1), and JP 2001-62269 (Figs. 1 and 2), each substantially alternatively disclose applicant's invention as recited by instant claims 3-5, as they depend from claim 1, except for the blades of the static mixer being perforated, specifically in the manner as recited by claims 4 and 5.

Kojima '528 (Figs. 2A and 2B; col. 2, lines 42-63; col. 4, lines 25-55; col. 7, lines 4-6; col. 8, lines 4-7) teach that static mixer vanes being perforated in the manner as required by instant claims 3-5, as they depend from claim 1, provide for much better mixing than the unperforated prior art devices, whereas the velocities and thus mixing efficiencies are increased and the energy used by the device is reduced. It would have been obvious for an artisan at the time of the invention, to modify the vanes of the static mixers of any one of the primary references, to be perforated in the manner as recited by claims 3-5, as they depend from claim 1, in view of Kojima '528, since such would provide a more efficient mixing of the phases.

15. Claims 3-5(2) are rejected under 35 U.S.C. 103(a) as being unpatentable over the reference combination as applied to claim 2 above, and further in view of Kojima '528.

The reference combination as applied to claim 2 above substantially discloses applicant's invention as recited by instant claims 3-5, as they depend from claim 2, except for the blades of the static mixer being perforated, specifically in the manner as recited by claims 4 and 5.

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Kojima '528 (Figs. 2A and 2B; col. 2, lines 42-63; col. 4, lines 25-55; col. 7, lines 4-6; col. 8, lines 4-7) teach that static mixer vanes being perforated in the manner as required by instant claims 3-5, as they depend from claim 2, provide for much better mixing than the unperforated prior art devices, whereas the velocities and thus mixing efficiencies are increased and the energy used by the device is reduced. It would have been obvious for an artisan at the time of the invention, to modify the vanes of the static mixers of the reference combination as applied to claim 2 above, to be perforated in the manner as recited by claims 3-5, as they depend from claim 2, in view of Kojima '528, since such would provide a more efficient mixing of the phases.

Double Patenting

16. Claims 1-5 of this application conflict with claims 1-5 of Application No. 11/075,138. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

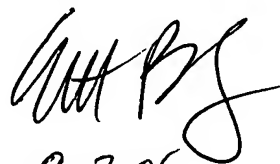
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18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is 571 272-1153. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Scott Bushey
Primary Examiner
Art Unit 1724


9-7-06

csb
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